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ABSTRACT

In July 1969, Governors State University was created by an act of the legislature of the State of Illinois and, since then, has become operational. This paper is a report on curricular research and development at Governors State University, with a discussion of special emphasis factors and processes which have influenced work in the area of curricular research and development. The information presented focuses on the College of Environmental and Applied Sciences which has a program organized on interdisciplinary, problem-focused lines and which includes concentration at the baccalaureate and masters levels in science, science teaching, and health science. Instruction is performance-based and criterion-referenced. The student population includes transfer students from a wide range of community colleges and four year institutions and involves the broad spectrum of people found in metropolitan areas, especially from low-middle income and minority families. (Author/PEB)

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CURRICULUM RESEARCH & DEVELOPMENT AT A NEW SENIOR UNIVERSITY

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INTRODUCTION

In July 1969, Governors State University was created by an Act of the Legislature of the State of Illinois. Since then, a senior division University, with an enrollment of 2500 students in four colleges, has been made operational. A campus has been built; a curriculum and systems of operation have been devised. This task would have been a sizable one even if usual patterns of higher education had been followed. However, traditions have been questioned and the University is quite unlike others.

The subject of this paper will be on curricular research and development with special emphasis factors and processes which have influenced work in this area. The paper will further focus on one of the University's four colleges, the College of Environmental & Applied Sciences; university-wide systems will be included where relevant.

To aid the reader, a brief overview of the College's current programs will be given prior to discussing the factors and processes that have led to their development. Within the College of Environmental & Applied Sciences, there are three Instructional Programs each of which is subdivided into Areas of Emphasis and Orientations as follows:

Instructional Program	Area of Emphasis	Orientation	Degrees Available
Science	Interdisciplinary Science/ Environmental Technology	Environmental Analysis	BA MA
		Environmental Conservation	BA
		Environmental Management	MA
	Human Ecology	Environmental Planning	BA

Instructional Program	Area of Emphasis	Orientation	Degrees Available
Health Science	Health Science Practice	Nursing	BA MA
		Medical Technology	BA
	Health Science Education	Nursing Teaching	MA
		Allied Health Services Education	BA MA
	Health Science Administration	Nursing Administration	MA
		Health Services Administration	BA MA
Science Teaching	Elementary Science Teaching	Teaching	MA
		Curriculum	MA
		Supervision	MA
		Environmental Education	MA
	Secondary Science Teaching	Teaching	MA
		Curriculum	MA
		Supervision	MA
		Environmental Education	MA
	Community College Science Teaching	Environmental Science	MA
	K-12 Science Teaching	Environmental Science	BA MA

In each Instructional Program, students have considerable flexibility in the relative specialization they may achieve while working toward their degree. That is, some students may choose to work toward degrees in specialized Orientations while others may earn degrees in the more general Areas of Emphasis.

INFLUENCING FACTORS

A wide range of factors have influenced program development in the College of Environmental & Applied Sciences. Some of the more important ones are:

1. The Illinois Board of Higher Education issued a Report on New Senior Institutions[1] as part of the planning prior to the establishment of Governors State University. This document describes in general terms some of the initial guidelines for the University. For example, it specifies that the University shall provide programs for juniors, seniors, and first-level graduate students. It further states that the University should address itself toward meeting the educational needs of students who, because of age, economics, or responsibilities, cannot attend a residential college. Moreover, the University is to provide for the educational needs of individuals from social and cultural groups typically denied access to higher education.

   In some areas, however, the Report contains paradoxical statements. One of these which influences curriculum planning specifies that the University should have a liberal arts orientation while it also stresses the need to prepare individuals for jobs. Issues, such as this, were left unresolved and the professional staff has been striving to develop curricula that satisfy somewhat disparate guidelines.

2. Students transfer from a wide range of community colleges and four year institutions, and the heterogeneity of their backgrounds has profound implications for curriculum planning and development. Moreover, when compared with students in traditional institutions, students who enroll in Governors State University are older (average student age is 32 years) and more work-experienced, which not only increases

heterogeneity but also suggests educational needs which are different from those of younger students, possessing less practical knowledge.

3. Current employment opportunities, which are limited for graduates in science and science teaching but are excellent for health science graduates, have influenced curricular development. This situation has also influenced enrollment in that fifty-five per cent of the student body is working at the graduate level.
4. Certification requirements and existing job descriptions have also influenced curriculum planning and development, especially in the health sciences. If graduates are to be employed in areas where licensure or certification is required, or if job descriptions are to be satisfied in organizations and agencies which potentially employ large numbers of graduates, both negotiation with and response to certifying and employing agencies is an essential part of curriculum planning and development.
5. A commitment to competency-based instruction was made early in the development of the University.[2] This has had major implications for curriculum research and development since little prior work had been done in implementing competency-based systems at the university level.
6. The University adopted a calendar consisting of six eight-week sessions each year. The implications of this decision on curricular planning and on the delivery of instruction were profound.

PROCESSSES & ORGANIZATION

The processes used in planning and developing the College's curriculum are:

1. General objectives for all three Instructional Programs were formulated and reviewed by Collegial faculty.

2. Potential Areas of Emphasis and Orientations were identified by faculty, curriculum development specialists, administrators, and members of governance boards. Needs assessments and feasibility studies were conducted to determine the desirability of further development.
3. Competencies expected of degree recipients in selected Areas of Emphasis and Orientations were prepared by faculty members with appropriate expertise, aided by curriculum development specialists and external consultants.
4. Learning modules were developed to aid students in achieving competencies expected of degree recipients. Learning modules are similar to courses, but they differ in important respects such as:
   a. Learning modules are usually interdisciplinary in content.
   b. Learning modules are usually "team taught" by two or more professors.
   c. Learning modules ideally indicate alternative means by which students can achieve competencies.
   d. Learning modules are usually self-paced; that is, students can work at their own rate imposing their own deadlines.
   e. Written descriptions of learning modules are prepared prior to offering and are available to students as guides to study and work. The descriptions contain several elements including
      -- a rationale which describes the relevance of the learning module to competencies expected of graduates from specific programs and to the "world" outside the university.
      -- a statement of competencies that students will attain by completing the learning module;
      -- a list of instructional objectives that contribute to these competencies;
      -- a pre-assessment, which helps students determine if they have the essential prerequisites for the learning module, or if they have already attained the competencies and thus do not need to enroll in the learning module;
      -- assignments and tasks that are designed to help students achieve competencies;

— resources needed to complete assignments and tasks; and

— criteria that will be used in verifying achievement of competencies.

f. Professors can initiate a learning module without prior approval of faculty, administrators or a curriculum review committee. This is to enhance faculty members' freedom and creativity by not putting obstacles in the path of innovation.

5. Review systems were developed to insure quality and continuous appraisal of programs, learning modules,[3] and individual student's degree plans.[4]

6. A University-wide Instructional Systems Paradigm[5] was developed and adopted as a means of evaluating the overall processes of curriculum planning, development, implementation and research.

7. A University-wide agency called the Instructional Communications Center under the leadership of a Vice-President for Research & Innovation was established to ensure that instructional research and development would lead to improved curricular and instructional offerings. This agency has staff members in each College to aid in instructional improvement.

8. The College of Environmental & Applied Sciences has staff members assigned half time in the following roles to aid in curricular improvement:

   a. Coordinator of Curriculum & Instruction responsible for program development and implementation;

   b. Coordinator of Research & Evaluation responsible for program assessment;

   c. Liaison to Computer Center responsible for instructional uses of computers; and

   d. Liaison to Office of Vice President for Research & Innovation responsible for integrating University-wide and collegial research.

ACCOMPLISHMENTS

Competencies, and learning modules designed to aid students in achieving these competencies, have been written for each Area of Emphasis & Orientation identified in the Introduction. Competencies and examples of learning modules are presented on the next two pages for one area of emphasis, secondary science teaching.

Expected Competencies	Examples of Modules Appropriate for Achieving Competency
Recipients of the MA degree with an emphasis in secondary science teaching will be able to:	
1. Demonstrate knowledge of and ability to apply concepts of the environmental sciences including biotic, abiotic, and interactional concepts.	Environmental Earth Science Environmental Interactions I Environmental Interactions II Environmental Life Science Probability and Statistics
2. Describe and utilize inquiry processes in generating, testing and applying knowledge.	Air Analysis Air and Water Pollution Analytical Techniques for Environmental Study Current Problems in Environment Field Techniques Water Analysis
3. Retrieve, interpret and use information acquired through inquiries of others.	Researching Science Information
4. Demonstrate knowledge of the nature and evolution of scientific thought and its interactions with society.	Science: A Human Endeavor
5. Utilize contemporary concepts of learning processes in diagnosing students' learning needs and in planning and implementing instruction.	Inquiry Processes in Science Teaching Learning Processes
6. Describe and apply concepts of curriculum design in planning and organizing curriculum.	Curriculum Models Curriculum Theory Environmental Education

Expected Competencies	Examples of Modules Appropriate for Achieving Competency
7. Integrate knowledge of students, curricula and subject matter in developing strategies for effective teaching.	Activity Environments for Teaching Science Current Issues in Science Teaching Science
8. Demonstrate knowledge of and ability to apply a variety of techniques in assessing student learning and evaluating the effectiveness of his/her own instruction.	Assessing Educational Outcomes Evaluating Science Process Learning
9. Demonstrate skill in working and communicating with individuals from a diversity of cultural and intellectual backgrounds.	Electives
10. Describe and act upon a value set based on contemporary scientific and humanistic knowledge.	Ethics and Environments Science, Technology and the Quality of Life

Several learning modules have been devised to serve core competencies in different curricula. For example, all students in the health sciences must demonstrate proficiency in a set of core competencies. Three learning modules dealing with organization, values, and research have been devised as one means of attaining these core competencies. A Learning Module entitled "Analytical Techniques for Environmental Study" and one called "Field Techniques" are available to any student wishing to develop field and analytic skills. There are many additional examples of learning modules that are not required but which provide a means of attaining core competencies.

All nursing curricula have received accreditation by the Illinois Division of Registration & Examination which is the professional licensing agency for the State. The K-12 Science Teaching curriculum has been approved by the Bureau of Teacher Certification of the Illinois Office of the Superintendent of Public Instruction on a programmatic basis so that students who satisfy the specified competencies and earn both Baccalaureate and Master's degrees are automatically certified to teach the sciences at any grade level K-12. This is unique in Illinois and, perhaps, nationally. Accreditation is being sought in other professional areas along with accreditation by the North Central Association of Colleges & Universities.

A system for reviewing written descriptions of learning modules has been implemented. The purposes of this system are:

1. to assess the relevance of each learning module to instructional program needs;
2. to enhance the quality of the content of each learning module;
3. to improve the effectiveness of competencies and instructional objectives as devices for communicating ideas to students;
4. to assure the quality and internal consistency of competencies, student work, and evaluation;
5. to increase the likelihood of equitability among different learning modules in the amount of work required of students for the credit granted;
6. to aid in the development of learning module components;
7. to enchance the professional development of all faculty members.

In the review process, data are obtained from at least five sources:

1. professional peers within the College,
2. instructional development specialists,
3. professional peers in other institutions,
4. students, and
5. registrar's records of student completion rates.

Students routinely evaluate all learning modules; peers and instructional development specialists evaluate learning modules that are offered for a second time. Results of these evaluations have been useful in improving the organization and quality of written descriptions of learning modules as well as their delivery.

FUTURE CURRICULUM RESEARCH & DEVELOPMENT

A variety of tasks remain. Some of the higher priority items are identified below:

1. Feasibility studies are being conducted to determine the desirability of initiating additional Areas of Emphasis & Orientations.
2. Many operating systems need refinement to improve cost/effectiveness. For example, it has been observed that the University's calendar of six eight-week sessions causes considerable stress and reduced productivity on faculty and students because all tasks of instructional delivery have to be done six times each year rather than three or four times. Thus, discussions of the feasibility of changing the calendar are now in progress.

   Altho some core competencies, and learning modules designed to aid their attainment, have been devised, more work needs to be done in capitalizing on the unity of our interdisciplinary programs. Moreover, the high cost of traditional approaches to clinical education needs to be addressed and new patterns need to be sought such as simulation and cooperative education. More effective use should be made of media and non-traditional approaches to education which capitalize on the vast resources of the metropolitan Chicago area.
3. Improved means of assessing and verifying students' achievement of competencies must be devised. Competency-based education demands this, and up to now, development has focused more on defining competencies

and alternative means for achieving them while assessment has remained subjective. With increasing enrollments and consequent increases in demands on faculty time, assessment of competence needs to be simplified and made more objective.

4. The Instructional Systems Paradigm provides for continuous assessment of all parts of the instructional system from program objectives to effects of learning modules on students. This continuous assessment needs to be implemented so that curricula are periodically scrutinized and continuously improved.
5. More precise, objective data are needed on the effects and effectiveness of instruction, using both standardized tests and criterion-referenced appraisals. Some data are being gathered but more are needed on randomly selected populations; more in-depth studies need to be done both on individual students and individual program elements.
6. Research is needed on learners who are different from those found in traditional colleges especially regarding influences of age and experience on learning requirements of highly motivated students found in a senior university comprised of commuter students. These findings will have important curricular and instructional implications.

In summary, curriculum research and development at a senior division, commuter university presents some unique problems. The processes used at Governors State University, and the accomplishments made there, represent one set of responses to these problems.

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REFERENCES

1. Report on New Senior Institutions. Springfield, Illinois: Illinois Board of Higher Education, 1969.

2. Educational Planning Guidelines. Park Forest South: Governors State University, Undated.

3. Gallagher, J. J. "The Competency-Based Curriculum: Collegial Review of Learning Modules at Governors State University" Unpublished Paper, 1974.

4. Bulletin/Catalog 1974 The College of Environmental and Applied Sciences Park Forest South: Governors State University, 1974 pp 16 and 17.

5. Wartgow, J. et al. An Instructional Systems Paradigm for Governors State University, Park Forest South: Governors State University, 1973.